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George C. Marshall Space Flight Center  
Marshall Space Flight Center, Alabama 35812

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Baseline  
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**SU10**

**NEW FRONTIERS PROGRAM**

**EDUCATION AND PUBLIC  
OUTREACH PLAN**

**July 19, 2005**

**Approved for Public Release; Distribution is Unlimited**

## **SIGNATURE PAGE**

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## 1.0 Purpose

In conjunction with its 1995 strategic planning and the implementation plans developed in 1996, the Office of Space Science embarked on a journey to inspire and motivate students and engage the public in its space exploration and discovery activities. The following Education and Public Outreach (E/PO) goals were identified:

- **Share the excitement of space science discoveries with the public;**
- **Enhance the quality of science, mathematics, and technology education, particularly at the pre-college level; and**
- **Help create our 21st-century scientific and technical workforce.**

In 2003 NASA further defined the agency's vision statement

*To improve life here, to extend life to there, and to find life beyond.*

and its mission statement to

- a) understand and protect our home planet*
  - b) explore the universe and search for life and*
  - c) inspire the next generation of explorers*
- ...as only NASA can.*

This elevated education to being a core mission of NASA. An enhanced, coordinated Agency-level education program was undertaken through the newly created NASA Office of Education.

In 2004 NASA reorganized into four basic mission directorates, and the Science Mission Directorate (SMD) was created from the combination of the Office of Space Science and the Office of Earth Science. The SMD work is a significant element of the overall NASA education program and is committed to fostering the broad involvement of the space science community in E/PO.

The Solar System Exploration Division of SMD is responsible for the New Frontiers Program which carries out scientific investigations of our own solar system. This document describes the New Frontiers Program plan to support the SMD E/PO goals of enhancing the nation's formal education system and contributing to the broad public understanding of science, engineering, mathematics, and technology.

## 2.0 APPLICABLE DOCUMENTS, DEFINITIONS AND ACRONYMS

### 2.1 Applicable Documents

MPR 7120.3	Data Management, Programs/Projects
MWI 7120.4	Documentation Preparation Programs/Projects
NPR 1600.0	NASA Security Program Procedural Requirements
NPD 1440.6	NASA Records Management

## 2.2 Definitions

Document: Any statement or form in conventional/electronic media which presents policies, procedures, work instructions, instructional material, drawings, plans, specifications, requirements, handbooks, manuals, reports, standards, or other correspondence.

Mission: A complete, self-standing NASA space science investigation characterized by definition, development, launch service, mission operations, and data analysis.

## 2.3 Acronyms

E/PO	Education and Public Outreach
MPR	Marshall Procedural Requirements
MSFC	Marshall Space Flight Center
NASA	National Aeronautics and Space Administration
NFPO	New Frontiers Program Office
NPD	NASA Policy Directive
NPR	NASA Policy Requirements
PI	Principal Investigator
SMD	Science Mission Directorate

## 3.0 NASA Solar System Exploration

The discoveries produced by NASA solar system exploration missions will not only dramatically advance our understanding of the solar system, they will also allow NASA to further refine its exploration strategy. As noted earlier, the New Frontiers Program is a major program within the Solar System Exploration Division of SMD executing missions of solar system exploration. SMD has assigned management of the New Frontiers Program to NASA's Marshall Space Flight Center (MSFC). A brief overview is given below.

### 3.1 The New Frontiers Program

New Frontiers is a program of frequent, medium-class spacecraft missions that will perform high-quality focused scientific investigations designed to enhance our understanding of the solar system. The program is composed of independent missions that share a common funding and management structure. The program objective is to launch high-science-return planetary science investigations on an average of one every 36 months. New Frontiers will build on the innovative approaches used in NASA's Discovery and Explorer Programs, but will enable a class of missions that cannot be accomplished within the cost and time constraints of Discovery.

Each mission is led by a principal investigator (PI) who is affiliated with a university or research institution. The New Frontiers Program is focused on a specific set of high-priority scientific goals related to the exploration of Venus, Jupiter, the south polar region of the Earth's moon, Pluto and other Kuiper Belt objects, and comets. These particular solar system objects or classes of objects and the scientific objectives for each class of object were originally identified in the Decadal Solar System Exploration Survey, administered by the Space Studies Board of the

National Research Council, entitled *New Frontiers in the Solar System: An Integrated Exploration Strategy*

The first mission selected is **New Horizons**, a scientific investigation to obtain the first close look at Pluto-Charon and answer basic questions about the surface properties, geology, interior makeup and atmospheres on these bodies, the last in our solar system to be visited by a spacecraft. The mission will also visit one or more objects in the Kuiper Belt region beyond Neptune. New Horizons is scheduled to launch in January 2006 and reach Pluto in July 2015.

The second New Frontiers mission is **Juno**, which will conduct an in-depth study of Jupiter. The mission proposes to place a spacecraft in a polar orbit around the giant planet to investigate the existence of an ice-rock core; determine the amount of global water and ammonia present in the atmosphere; study convection and deep wind profiles in the atmosphere; investigate the origin of the jovian magnetic field; and explore the polar magnetosphere. It would launch in June 2010.

A complete list of missions is in the New Frontiers Program Plan, NWFR-PLAN-001.

#### **4.0 New Frontiers Program Office E/PO**

The NASA New Frontiers Program Office located at Marshall Space Flight Center (MSFC) has been assigned the responsibility to carry out the New Frontiers Program E/PO activities. A program office manager for E/PO, reporting to the New Frontiers Program manager, is responsible for overseeing and working with the E/PO leads for each New Frontiers mission to integrate their efforts.

Just as the science goals of each New Frontiers mission are unique, so is their approach to education and public outreach. The New Frontiers Program requires that each mission include a plan to allocate 1 – 2% of its total implementation budget (excluding the launch vehicle cost) on education and public outreach. Teams composed of educators, scientists, and communications specialists design the mission E/PO plan, looking for new and innovative ways to engage students and the public with the excitement and the meaning of their mission.

The program office E/PO manager works in cooperation with the mission E/PO leads to establish linkages among the program, the missions, the SMD E/PO support network of education forums and regional broker/facilitators, and other partners to help tell the cohesive story that provides context to NASA's solar system exploration.

The outcomes of this effort are education and outreach products, activities, and presentations to actively promote greater awareness and practical use of program and mission significant events, activities and results, as well as assistance to and coordination with the New Frontiers missions.

#### **5.0 E/PO Goals**

The specific E/PO goals of the New Frontiers Program are to:

- 1. Raise public awareness of the Program and its missions through products and activities designed for national, regional, and local audiences.**

- 2. Foster collaborative relationships among the program, the missions, and the SMD forums and to boost the impact of E/PO programs by improving their relevancy to external customers through coherence and by facilitating efficient use of resources.**
- 3. Provide programmatic leadership to the mission E/PO leads.**

To achieve these goals the MSFC E/PO tasks of the Program Office will include:

- a) develop and maintain a public web site that highlights the New Frontiers Program and its missions. The web site will provide an overview of the missions and news updates, identify means for involvement in the program, offer downloadable program level products, and promote the educational opportunities offered by each mission.
- b) research, write and publish an on-line quarterly newsletter to provide program news and current status of each mission plus their E/PO highlights. Significant mission events will be featured, including interviews and background stories on principal investigators, project managers, and other key project personnel.
- c) produce and distribute program and mission educational and outreach products (posters, CD-ROMs, decals, postcards, etc.) which communicate exploration activities to the public, students, educators, museums and science centers, Congress, team members, and the science and technology communities.
- d) encourage the missions to participate in and be responsive to forum-wide efforts such as monthly telecons and annual community conferences associated with formal and informal education activities to promote science and exploration.
- e) coordinate New Frontiers Program participation (booth, displays, materials, staffing, and workshops) in conferences associated with education and space exploration.
- f) work one-on-one with the mission E/PO leads to establish close working relationships and facilitate regular, pro-active exchange of information.
- g) serve as an ad-hoc participant on mission E/PO teams in preparation for launch, encounters, and sample return.

New Frontiers missions are selected by NASA Headquarters. During the formulation study phase, an E/PO plan is approved and put in place to implement. Hence, the New Frontiers Program Office does not dictate to the missions what or how they will do E/PO. Their E/PO plan is delineated in their proposal and their selection gives them the approval to proceed as planned. The New Frontiers Program E/PO manager works with the mission E/PO leads to provide guidance and ensure compliance with NASA E/PO policies and procedures.

The New Frontiers Program E/PO manager serves as the point of contact for the missions regarding issues pertinent to E/PO, such as NASA requirements, necessary approvals, media constraints, and points of contact. In addition, the program office interacts with the missions to share best practices, help avoid duplication, and support creative ideas for participation in larger programs.



The E/PO manager is delegated authority from the program manager to work with the missions and give programmatic approval for artwork, media communications, and E/PO products. The E/PO manager also represents the program at a variety of meetings for public communications.

The E/PO manager serves as a resource and point of contact for E/PO related inquiries, particularly those involving multiple missions. Inquiries may come from NASA Headquarters or other areas of NASA, institutions, schools, or the public.

## **6.0 Records**

This plan will be maintained in accordance with MPR 1440.2 and NPR 1441.1 as shown in Table I below.

TABLE I

<b>Records</b>	<b>Record Custodian</b>	<b>Location</b>	<b>Disposition Authority</b>	<b>Disposition Instructions</b>	<b>Maintenance</b>
NWFR-PLAN-005	SU10/JPL Shari Asplund	Building 4610, Room 5038	NPR 1441.1	Retire to Federal Records Center 2 years after completion, renewal, termination or cancellation of the program. Destroy when 10 years old.	Filed by title, and PCB date, hardcopy/chronologically in folder